A fossil Petal and a fossil Fruit from the Cretaceous (Dakota Group) of Kansas

By Arthur Hollick

Included in a collection of fossil plant remains from the Cretaceous (Dakota Group) of Kansas, recently obtained by the New York Botanical Garden from Mr. Charles H. Sternberg, of Lawrence, Kans., are two exceedingly interesting specimens — one representing a large petal, the other a fleshy fruit.

Petals, as fossils, are exceedingly rare, and I am not acquainted with any published figure of anything of the kind which can compare with ours, in regard to either size or satisfactory condition of preservation. Unfortunately, a portion of the upper part, including the apex, is gone, but it is sufficiently perfect to indicate what was its original shape, and the principal characters of the nervation are plainly discernible.

Careful examination and comparison has shown that, in all essentials, it agrees with the petals of some of our large-flowered magnolias, such as *M. foetida* Sarg. and *M. macrophylla* Michx., and as some ten species of *Magnolia*, founded upon more or less well-defined leaves, have been described from the Dakota group, I have decided to refer it to that genus.

The probabilities, of course, are that it belongs to a species to which one of the fossil leaves belongs, but as it is impossible definitely to connect the petal with any one of these a distinctive name is necessary, which should indicate that the fossil was a petal and not a leaf.

Magnolia palaeopetala sp. nov.

Petal apparently ovate-spatulate in outline, about 15 cm. long by 10 cm. broad, convex, laterally constricted and incurved at the base; margin entire, wavy or flexuous; nervation flabellate, dictyodrome, simple and well defined below, forking and thinner above, anastomosing, the areolae and reticulations becoming successively smaller and the nervilles finer, towards the margin. (*Fig. A.*)

Locality: Ellsworth Co., Kans.

It is apparent that this petal must have possessed a texture more or less coriaceous, as otherwise its preservation in such a relatively coarse medium as the Dakota sandstone would have been impossible, and this supposition is supported by the fact that the convexity of the surface, the incurving of the base and margin and the constriction of the former, all appear to have been characters of the living flower and not to be due to subsequent distortion by fossilization.

FIG. A. *Magnolia palaeopetala* Hollick.

The fruit is plainly that of a fig, and although some twenty-three species of *Ficus* have been described from the Dakota group they were based upon leaf-impressions alone. Only two specimens of fruit were known and these were too ill-defined to admit of specific description. ("Fruits of *Ficus*," Lesq. Fl. Dak. Group, 85. *pl. 10. f. 7, 8.* See our Fig. B, 2, 3.) They are incidentally mentioned however as being associated with leaves of *Ficus inaequalis* Lesq.

Specimens considerably more satisfactory were described and figured by Heer in 1874, from the lower Atane beds of Greenland — representing a geological horizon which is practically the equivalent of the Dakota group — under the name *Ficus protogaea* Heer * (Fl. Foss. Arct. 3^2: 108. *pl. 30. f. 5–7.* See our Fig. B, 4, 5, 6.)

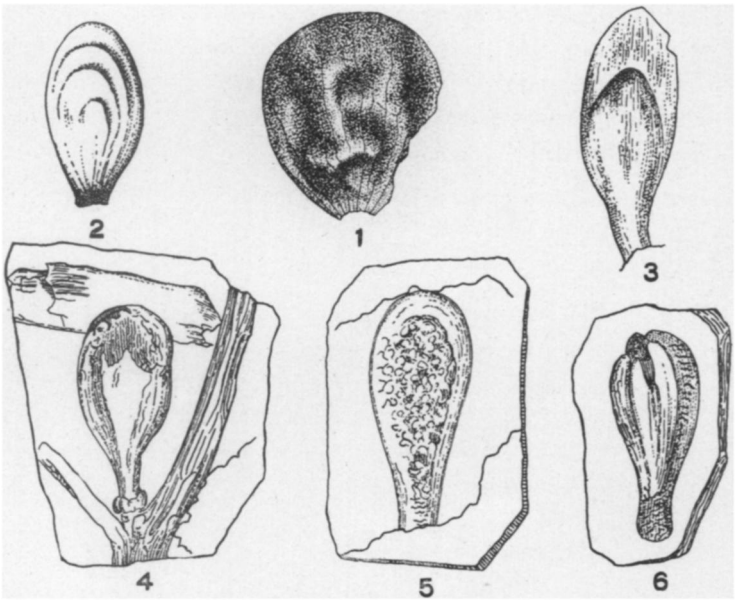

FIG. B. 1. *Ficus neurocarpa* Hollick. 2, 3. "Fruits of *Ficus*" (after Lesquereux). 4–6. *Ficus protogaea* Heer (after Heer).

* The name *Ficus protogaea* was previously used by Ettingshausen, in 1867, in describing a fragmentary fossil leaf from the Cretaceous of Niederschoena in Saxony (Sitzb. Akad. Wiss. Wien, Math.-Nat. Cl. 55: 249. *pl. 2. f. 5.*) In any revision of the genus it would therefore be necessary to rename these fruits. In this paper however it is not thought necessary to do anything more than to call attention to the fact.

These five specimens are the only ones which I have found recorded as occurring in the same geological horizon as that to which our specimen belongs, or in any strata which may be regarded as its equivalent, and none of them is equal to ours as a specimen, so far as may be judged from the figures.

Ficus neurocarpa sp. nov.

Fruit broadly obovate-spatulate in outline, 2.8 cm. long by 2.4 cm. maximum width, thick and wrinkled towards the middle, flattened more or less at or near the margin, minutely punctate and delicately nerved; primary nerves convergent but distinct and separated from each other at the base, divergent and becoming thinner and indistinct above, where they anastomose; secondary nerves very fine and apparently irregularly disposed. (*Fig. B, 1.*)

Locality: Ellsworth Co., Kans.

This fossil has very much the appearance of many dried herbarium specimens and it is evident that it must have possessed considerable consistency in order to retain its original shape, as it has done to a certain extent, under the pressure to which it must have been subjected.